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ABSTRACT

One of the programs funded by the Education Improvement Act in South Carolina was the child development program for 4-year-olds with readiness deficiencies placing them at risk for early school failure. This report presents the findings of three studies focusing on the characteristics of the child development programs and students, the academic achievement of students over time, and the perceptions of the parents of children currently enrolled in the child development programs. Section 1 of the report examines the 2000-01 programs and their students, using information about staff, location, organization, service capacity, curriculum, instructional methods, and program improvement needs. Student characteristic data included ethnicity, family background, and screening test information. Section 2 compares the academic achievement of nearly 10,000 child development program participants with that of nonparticipant peers from Grade 1 through 3 and identifies the participants who benefited the most from the program. Findings yielded the following major conclusions: (1) child development programs had a positive long-term effect on participants' later academic performance compared to nonparticipants'; (2) the program helped Asian, Caucasian, and Hispanic children more than other ethnic groups in later reading and mathematics performance; (3) fewer participants than nonparticipants needed academic assistance more than two hours weekly at Grade 2; and (4) full-day and half-day participants performed equally well on standardized achievement tests in Grade 3. Section 3 examines current parent perceptions of the program quality, the progress their children made while in the program, and the program administrator-parent relationship. Overall parent satisfaction with the program was high. The report's three appendices include the parent survey form and a list of school districts providing MAT7 test data in Spring 2002. (Contains 13 references.) (KB)

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ED 472 356

What Is the Penny Buying for South Carolina?

Child Development Programs for Four-Year-Olds: Student and Program Characteristics, Longitudinal Study of Academic Achievement, and Current Parent Perceptions

Prepared by the
Evaluation Section, Office of Research
South Carolina Department of Education

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State Superintendent of Education

December 2002

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Contents

General Introduction 1

Section 1: Student and Program Characteristics, 2000–01

Methodology 2
Population 2
Characteristics of Child Development Program Students 2
Characteristics of the Child Development Program 5
Summary 10
Recommendations 12

Section 2: Longitudinal Study of Academic Achievement, 1995–96 through 1999–2000

Review of the Literature 14
Study Design and Methodology 16
Population and Sample 17
Data Collection 17
Data Analyses 17
Limitations to the Study 18
Research Questions 19
Findings 19
Conclusions 27
Recommendations 28

Section 3: Current Parent Perceptions, Spring 2002

Methods and Procedures 30
Findings 30

References 34

Appendix A: Survey Form: Parents' Perception of Child Development Programs for Four-Year-Olds 35
Appendix B: Memorandum 36
Appendix C: Districts Providing MAT7 Test Data, Spring 2002 37

General Introduction

The Education Improvement Act (EIA) was one of the first in a series of education reform initiatives enacted by the South Carolina General Assembly. Ratified in 1984, the EIA introduced programs to recognize and foster superior student performance, identify and improve poor performance, and enhance student achievement. The state legislature supported this reform effort through an increase of one cent in the state sales tax.

One of the programs funded by the EIA was the half-day child development program for four-year-old children with predicted readiness deficiencies that place them at risk for early school failure. The Target 2000—School Reform for the Next Decade Act of 1989 and the Early Childhood Development and Academic Assistance Act of 1993 (Act 135) expanded the scope of child development programs to include parent education and family literacy initiatives. The federal Title I program and the state-sponsored First Steps program provided additional funding.

The EIA requires the State Board of Education to submit an assessment of the Act to the General Assembly by the first of December every year. This year's assessment report focuses on the child development program in South Carolina. The report is comprised of three distinct studies that focus upon the characteristics of the child development programs and students, the academic achievement of child development students over time, and the perceptions of the parents of children currently enrolled in child development programs, respectively. Wei Yao, of the State Department of Education's Office of Research, served as the principal investigator on each of the studies.

Section 1 examines the programs in place during the 2000–01 school year and the students who were served by them. The programs are examined using data that provide information about staff, location, organization, service capacity, curriculum, instructional methods, and program improvement needs. Student characteristics include ethnicity, family background, and screening test scores.

Section 2 first compares the academic achievement of child development program participants with that of their nonparticipant peers from grade one through grade three; then it compares the students within the program to determine who among them benefited the most, as measured by standardized tests. Children who were in the four-year-old child development program during the 1995–96 school year were tracked to the third grade in the 1999–2000 school year.

Using survey data collected in the spring of 2002, section 3 investigates how parents of children served in the four-year-old child development program perceive the program. Parents were asked to rate the program quality, the progress their children made while in the program, and the program administrator-parent relationship.

SECTION 1

Student and Program Characteristics, 2000–01

Using data from the 2000–01 school year, this section provides a detailed description of the students who participate in child development programs statewide. Student characteristics include ethnicity, family income, child's weight at birth, guardianship status, day-care experience, and average score on the Developmental Indicators for the Assessment of Learning (DIAL) screening test. Program characteristics include number of children served; enrollment capacity; location of school; program organization; instructional methods; curriculum; staff qualifications, experience, and training; computer usage; student record-keeping; post-program evaluation; and teacher-identified program improvement needs. The health and safety status of programs is assessed using the State Department of Education's *Guidelines for Half-Day Child Development Programs* (1998).

An examination of the student demographic data revealed that programs were serving the targeted population of four-year-olds identified by their school districts on the basis of their score on the DIAL screening test and their family background as being at risk for early school failure. Most participants were ethnic minorities or from disadvantaged families.

Results from the data analysis indicated that a little over half of the programs statewide were able to offer services to all four-year-olds identified as being at risk for early school failure. Although most child development programs were housed at schools located in rural areas, their capability of serving all identified children was less than schools in urban areas. Over two-thirds of the programs met the health and safety environment standards set by state guidelines. A majority of teachers in the program conducted post-program student evaluations. Most teachers perceived that more intensive parent involvement was the key to program improvement.

Methodology

A retrospective study with ex post facto data in the 2000–01 school year was conducted using descriptive evaluation methods to demonstrate what actually occurred in the program.

Population

The population consisted of all the participants in South Carolina child development programs during the 2000–01 school year. The valid records of 14,896 children served by 399 programs in eighty-five school districts were used in this study.

Characteristics of Child Development Program Students

Selection for participation in a child development program is based on the student's performance on a screening instrument designed to determine a student's developmental level. Most school districts (95 percent) use students' scores on the Developmental Indicators for the Assessment of Learning—Revised (DIAL-R) or the Developmental Indicators for the Assessment of Learning—Third Edition (DIAL-3), together with additional district-defined criteria that have a high correlation with the lack of success in school, to identify children at risk for early school failure.

In the 2000–01 school year, African-Americans, at 47.8 percent, constituted the largest percentage of child development participants, followed by Caucasians at 45.5 percent. Family income was less than $20,000 annually for 58.3 percent of the child development students. Only 8 percent of the participants had weighed less than 2,500 grams at birth. Over 56 percent of the children enrolled in child development programs lived with both parents, and over 58 percent of the children had not previously been enrolled in day care. Tables 1 though 6 provide the details.

TABLE 1

Ethnicity of Child Development Students
2000–01 School Year

Ethnic Group	Percentage	N
African-American	47.8%	6,790
Asian	1.2%	171
American Indian	0.2%	28
Caucasian	45.5%	6,463
Hispanic	4.0%	568
Other	1.3%	185
Total	100.0%	14,205

TABLE 2

Family Income Status of Child Development Students
2000–01 School Year

Annual Family Income	Percentage	N
Less than $10,000	30.1%	2,588
$10,001–$15,000	14.4%	1,238
$15,001–$20,000	13.8%	1,187
$20,001–$25,000	18.8%	1,617
$25,001–$30,000	6.5%	559
$30,001–$35,000	3.1%	267
$35,001–$40,000	3.0%	258
Over $40,000	10.3%	886
Total	100.0%	8,600

TABLE 3

Child Development Students' Weight at Birth
2000–01 School Year

Child's Birth Weight	Percentage	N
Low birth weight	8.0%	766
Not low birth weight	92.0%	8,806
Total	100.0%	9,572

Note: "Low birth weight" = infants born weighing less than 2,500 grams, or 5.5 pounds (*South Carolina Maternal and Child Health Data Book* 2001).

TABLE 4

Child Development Students' Guardian Status
2000–01 School Year

Child lives with	Percentage	N
Both parents		7,815
Father/male guardian		333
Mother/female guardian		5,154
Other		554
Total	1	13,856

TABLE 5

Child Development Students' Day-Care Experiences
2000–01 School Year

Day-Care Experiences Prior to Age Four	Percentage	N
3–4 years in day care	10.8	1,144
2–3 years in day care	9.	975
1–2 years in day care	15.6	1,653
Less than 1 year in day care	6.	636
No day care at all	58.4	6,188
Total	100.0%	10,596

TABLE 6

Students' Average Scores on Screening Test Prior to Program Entrance
by Type of Child Development Program, 2000–01 School Year

Mean Scores on DIAL-R or DIAL-3	Center-Based Half-Day	Center-Based Full-Day	Classroom Half-Day	Classroom Full-Day
Motor skills	13.9	16.0	15.3	17.0
Concepts	15.2	16.6	15.7	17.3
Language	17.0	16.8	18.1	19.8
Total	46.1	49.4	49.1	54.1

N=14,896

A total score between 24 and 37 for a child aged from four years and one month to four years and eleven months indicates a potential delay in development (Mardell-Czudnowski & Goldenberg, 1998). This standard identified 16 percent of the total screening population with one standard deviation from the mean. The highest possible total score is 81. If a child aged four years and one month has a total scaled score of 54, he or she is ranked in the 95th percentile while a child with the same total score but aged four years and eleven months has a percentile rank of 61. In the 2000–01 school year, South Carolina child development programs were serving 14,896 children, less than one-third (28 percent) of the 53,251 four-year-olds in South Carolina reported by U.S. Bureau of the Census for 2000.

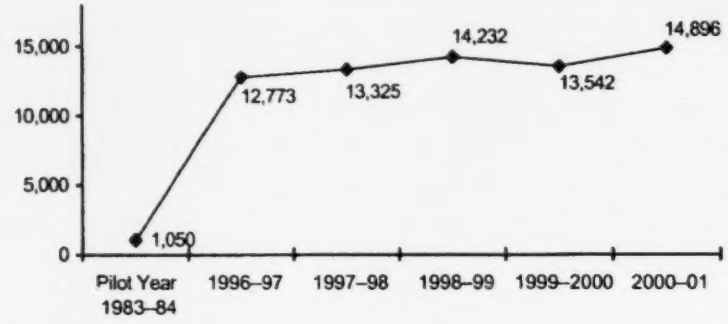
Characteristics of the Child Development Program

Student Enrollment Capacity

Since the establishment of the child development program for four-year-olds in 1984, the number of students served by the program has increased to more than fourteen times (14.2) the initial enrollment. In the 2000–01 school year, 14,896 valid student records were obtained.

Figure 1

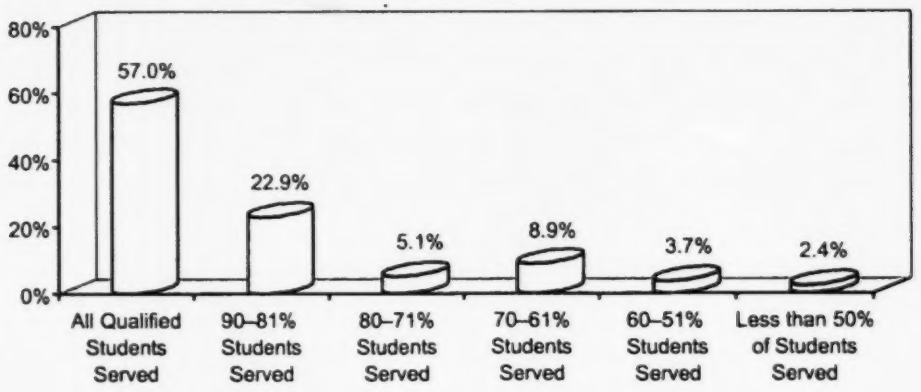
Number of Children Served by Child Development Programs in the Past Five Years Compared to the Pilot Year



Although the child development program has increased more than tenfold since its inception, its enrollment capacity prevents it from serving all children in need. In the 2000–01 school year, 57 percent of the schools/centers that sponsored a child development program were able to serve every child identified. About one program in five (22.9 percent) was able to enroll 81 to 90 percent of the children identified as at risk for early school failure.

Figure 2

Enrollment Capacity of Child Development Programs, 2000–01 School Year

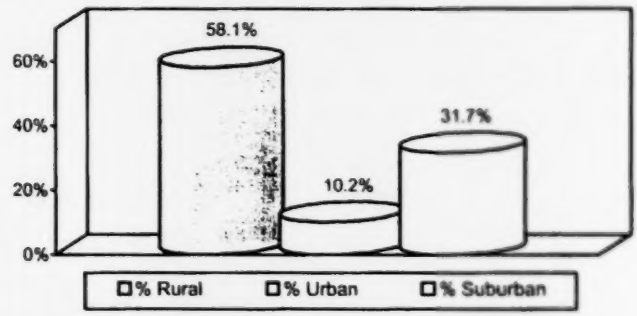


Program Distribution by School Location

According to the definition of school location types from U.S. Bureau of the Census, over one-half of the schools/centers (58.1 percent) that sponsored four-year-old programs were located in rural areas. Schools located in urban areas held about 10 percent of the child development programs (see figure 3).

Figure 3

Distribution of Child Development Programs by Location of School, 2000–01 School Year

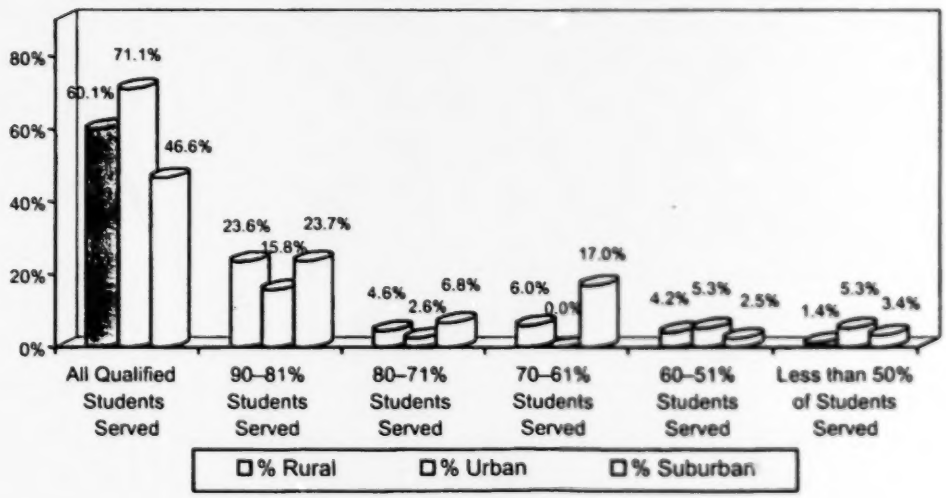


Program Enrollment Capacity by School Location

The data revealed an unbalanced structure of enrollment capacity between urban and rural schools for children at risk for early school failure. Though more than half of the child development programs are located at schools in rural areas, only 60.1 percent of rural schools were able to serve all children identified at risk for early school failure compared to 71.1 percent of schools in urban areas (see figure 4).

Figure 4

Program Enrollment Capacity by School Location, 2000–01 School Year



Program Organization

Most of the child development programs (86.5 percent) were sponsored by public primary schools supervised by principals, 12.3 percent of the programs were located in children's centers supervised by directors, and 1.2 percent of the programs were outreach programs. The vast majority (96 percent) of the programs provided half-day or extended half-day services; 4 percent of child development program students were served in full-day programs.

Instructional Methods

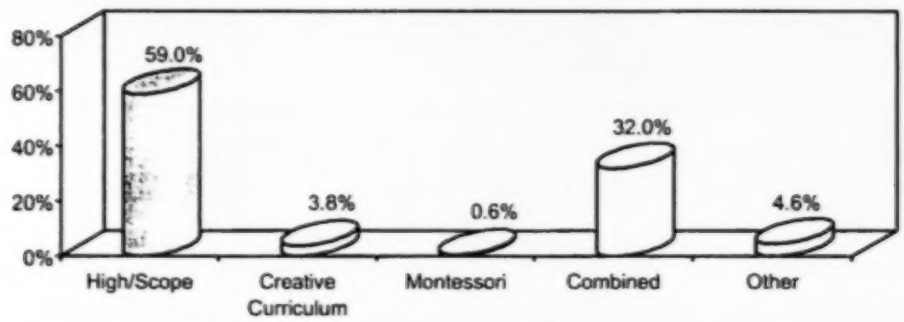
Most child development programs (91.4 percent) used a combination of whole-group and center-time instruction. With the whole-group instructional method, children spend a large portion of the day in activities involving the entire class. With center-time instruction, or in a center-based class, children in full-day programs participate in activities involving the entire class at least one hour in the morning and one hour in the afternoon. For half-day programs, the children spend at least one hour each day participating in activities involving the entire class. Eight percent of child development programs used only the center-time method; very few programs reported using only the whole-group method.

Curriculum Models

High/Scope was the curriculum adopted in the majority (59.1 percent) of child development program classrooms. A combined curriculum was used by one-third of the schools/centers (32 percent), and less than 9 percent utilized the Creative Curriculum, the Montessori Curriculum, or other types of curricula (see figure 5).

Figure 5

Curriculum Utilized by Child Development Programs, 2000–01 School Year



The Creative Curriculum was developed for use in United States Department of Defense schools in the mid-1980s. A developmentally appropriate curriculum, it addresses meeting the individual needs of each child, teaching the child according to his or her age and stage of development, and teaching in ways that value the child's culture and family. Dr. Maria Montessori, of Italy, developed the Montessori Curriculum in the early 1900s. Central to this method are observation of children and their activities, structured training of teachers and teaching assistants, use of specific instructional materials, and having children of different ages in one class.

Staff Qualifications

State Department of Education (SDE) guidelines specify that teachers in child development programs should be certified in early childhood education or hold a bachelor's degree with a minimum of 6 hours in early childhood education. In 2000–01, 96.2 percent of teachers and 3.4 percent of teacher aides in child development programs held early childhood education certification.

Staff Experience

Most of the teachers (66.5 percent) in the child development programs had more than ten years of teaching experience, while less than half of teacher aides (47.6 percent) had experience of the same length. Table 7 displays the staff experience distribution.

TABLE 7

Staff Teaching Experience with Child Development Programs, 2000–01 School Year

	0–5 Years	6–10 Years	11–15 Years	16–20 Years	Over 20 Years
Teacher	19.3 %	14.2 %	18.3 %	18.3 %	29.9 %
Teacher aide	31.9 %	20.5 %	19.5 %	11.6 %	16.5 %

In-Service Training for Teachers and Teaching Aides

In-service training days for staff varied among teachers and teaching aides. Teachers had more training opportunities than the aides did; 17 percent of the programs had no in-service training for teaching aides (see table 8).

TABLE 8

Child Development Staff Receiving In-Service Training by Number of Days of Training, 2000–01 School Year

	No Days of Training	1–5 Days of Training	6–10 Days of Training	Over 10 Days of Training
Teacher	1.6 %	52.8 %	37.3 %	8.3 %
Teacher aide	17.3 %	66.2 %	15.1 %	1.4 %

Health and Safety Environment

State guidelines specify that appropriate and adequate physical facilities be provided to child development programs. Classrooms should have a minimum of 35 square feet per child and should include a sink area. The bathroom facility should be either within the classroom or in close proximity. Outdoor play space should be provided at a minimum of 100 square feet per child. One nutritional supplement (snack) should be provided for each child in each half-day session. Data analyses revealed that about two thirds of the programs provided adequate classroom space for children, and six out of ten programs provided a daily snack (see table 9).

TABLE 9

Health and Safety Environmental Standards for Child Development Programs 2000–01 School Year

Standard	Percentage of Programs Meeting the Standard
35 square feet per child	68%
Classroom with bathroom	83%
Bathroom in close proximity	23%
100 square feet play space per child	76%
Snack provided daily in classroom	60%

Computer Use in the Classroom

Although State Board regulations do not require that South Carolina classrooms be equipped with computers, 96.2 percent of the classrooms used for child development programs had at least one computer. Computer usage is detailed in table 10.

TABLE 10

Computer Utilization in Child Development Programs 2000–01 School Year

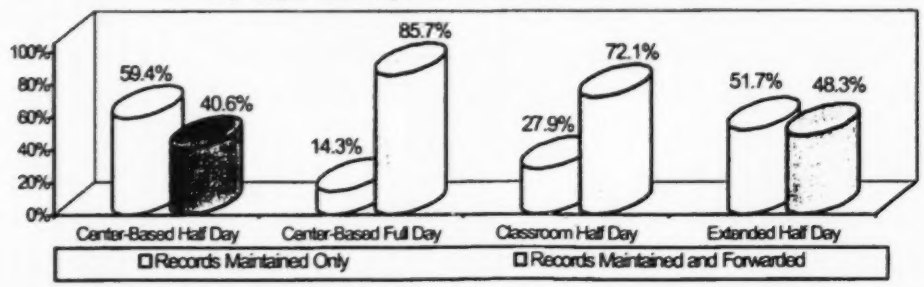
Purpose of Computer Use	Percentage of Programs (mutually inclusive)
Keeping records	34%
Assisted instruction	54%
Instructional games	86%

Student Records

State guidelines call not only for teachers to keep individual student records of attendance but also for school districts to initiate a permanent record for each child upon his or her entry into the program. This record should be cumulative, including information on the child's growth and development, and should be maintained and forwarded to the child's next teacher each subsequent year as part of the district's official procedure. Statewide data revealed that the majority of the programs (65.7 percent) maintained and forwarded each child's cumulative records. However, practices varied among different types of programs (see figure 6).

Figure 6

Percent of Child Development Programs Maintaining Student Cumulative Records by Type of Program, 2000–01 School Year

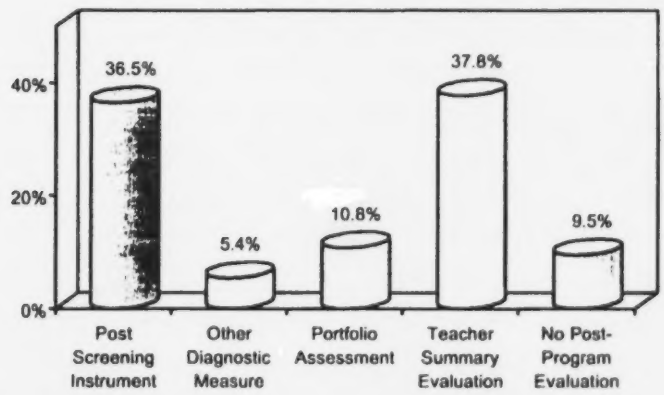


Post-Program Evaluation

State Board of Education Regulation 43-264.1 requires that districts participate in evaluation efforts coordinated by the SDE. This evaluation includes tracking child development program participants through kindergarten up to at least the third grade to determine the program's impact on student success. Over 90 percent (90.5 percent) of the programs practiced post-program evaluations, though evaluation methods differed from school to school. Figure 7 displays the different practices for post-program evaluation.

Figure 7

Types of Post-Program Evaluation Used by Child Development Programs 2000–01 School Year



Teachers' Perceived Program Improvement Needs

On a data collection form teachers were asked to indicate the areas in their child development program that they felt needed improvement. The three areas most in need of improvement as indicated by the child development teachers were parent involvement (55 percent), funding (49 percent), and staff training (37 percent).

Summary

- The number of students served in the programs increased by more than 14 times (14.2) from the pilot year 1983–84 (1,050) to the 2000–01 school year (14,896).
- Of the participants in the 2000–01 school year, more than half (54.5 percent) were the children of ethnic minorities.
- Annual family income was less than $20,000 for 58.3 percent of the students.

- More than one-third (37.2 percent) of program children came from single-parent families with a mother or female guardian only. Over half the children (56.4 percent) lived with both parents.
- Only 8 percent of child development students weighed less than 2,500 grams at birth.
- Almost 60 percent (58.4 percent) of children had no day-care experiences before age four.
- Over half of the programs (58.1 percent) were sponsored by schools located in rural areas.
- Fifty-seven percent of child development programs statewide were able to provide services to all four-year-old children identified by the school districts as being at risk for early school failure. Programs in urban areas, which constituted only 10.2 percent of all children served statewide, had larger enrollment capabilities. Of these urban programs, 71.1 percent were able to serve all children identified by the school districts. In rural areas, 60.1 percent of the programs were able to serve all identified children; in suburban areas, 46.6 percent.
- High/Scope was the dominant curriculum used in the child development programs (59 percent). A little over one-third of the programs (32 percent) adopted combined curricula.
- The vast majority of teachers (96.2 percent) in the child development programs were certified in early childhood education while 3.4 percent of teaching aides were certified.
- Most teachers (80.7 percent) had more than five years of experience teaching in child development programs. About two-thirds of teaching aides (68.1 percent) also had more than five years of experience.
- At least six out of ten programs met the health and safety standards set by the state guidelines of 1998. The guidelines specify a classroom space of 35 square feet per child (68 percent), a bathroom for each classroom (83 percent), 100 square feet of outdoor play space per child (76 percent), and a daily snack in the classroom (60 percent).
- Almost two thirds of the programs (65.7 percent) met the state guideline of maintaining and forwarding a student's records to his or her next teacher each subsequent year.
- Almost every class (96.2 percent) was equipped with computers for record keeping and instructional activities.
- Nine out of ten programs (90.5 percent) practiced post-program evaluation. The evaluation methods included screening instruments (36.5 percent), portfolio assessment (10.8 percent), teacher's summary evaluation (37.8 percent), and other diagnostic measures (5.4 percent).
- Teachers' perceptions of needed program improvements included more intensive parent involvement (55 percent), additional funding (49 percent), and additional staff training (37 percent).

Recommendations

- Resources should be focused primarily on programs located in rural areas since those programs have larger populations of children at risk, but less capability for enrolling qualified children.
- Further exploratory studies should be conducted to investigate what proportion of qualified children were put on a waiting list for child development services and why.
- The status of program supervisors' qualifications and experiences with early childhood education should be studied to determine ways to help establish a strong leadership team.
- A detailed investigation into the nature of staff development offerings and the support from local education agencies should be conducted as a means of identifying key factors of successful programs.

SECTION 2

Longitudinal Study of Academic Achievement, 1995–96 through 1999–2000

This longitudinal study of academic achievement attempts to evaluate the effects of participating in South Carolina's child development programs on children's later academic achievement. All child development participants and a randomly selected comparable group of nonparticipants were tracked from age four through the first three years of elementary school, with 15,143 students remaining active in the study (85 percent of the original subjects). Statistical analysis methods such as t-tests, analysis of variance (ANOVA), and analysis of covariance (ANCOVA) were utilized at the significance level of .05. Research questions addressed the differences in test performance between those students who participated in a child development program at the age of four and those students who did not. Test scores also are compared by demographic variables in an attempt to determine which groups of children benefited most from participation in a child development program.

The data used for this study were obtained from five sources:

- the statewide survey on programs for four-year-olds conducted by the SDE's Office of Research during the 1995–96 school year;
- statewide student information files from the 1997–98 school year through the 1999–2000 school year (SDE precode file);
- statewide Cognitive Skills Assessment Battery (CSAB) testing in grade one in the 1997–98 school year;
- Metropolitan Achievement Tests, Seventh Edition (MAT7) testing of available students in nine school districts in spring 1999 (when the cohort group was in the second grade); and
- statewide Palmetto Achievement Challenge Tests (PACT) testing in spring 2000 (when the cohort group was in the third grade).

The data analysis indicates that participating in the child development program for four-year-olds helps at-risk children perform significantly better academically at grades one and three compared to similar nonparticipants. Asian, Caucasian, and female students benefited more from the program than did others. Limited data from the nine districts (Aiken, Bamberg Two, Barnwell Forty-Five, Clarendon Two, Dillon One, Kershaw, Orangeburg Five, Saluda, and Williamsburg) revealed that although participants scored higher on MAT7 reading and mathematics at grade two, the difference was not enough to reach statistical significance. Program participation reduced students' need to spend more time per week being given academic assistance at grades two and three. Comparisons between full-day and half-day participants showed no significant differences on later academic performance.

Review of the Literature

Quality early childhood intervention programs are seen as one of the most effective ways to prevent learning difficulties and to promote healthy development and well being, especially among children from disadvantaged families (Reynolds, 2002). Many researchers indicate that the negative effects of poverty can be reduced when children participate in high-quality early childhood educational programs (Schweinhart et al., 1993; Schweinhart, 2001). Studies and discussions focus on issues such as whether programs had impact on the participants' later achievement and, if so, how long the program impact lasted. Who could benefit most from child development programs? What types of programs worked best for children who needed assistance to achieve success in school?

There appears to be little dispute about whether programs serving disadvantaged children have immediate or short-term effects (Barnett, in press). Repeatedly studies have reported that, in the short-term, children in well-implemented intervention programs consistently show higher levels of cognitive development, early school achievement, and motivation than do children who do not participate in such programs. Barnett for example, in his widely cited study on the effects of preschool programs (1995), synthesized ten studies that reported IQ gains at some point during or after program participation. In most instances, the gains were sustained through school entry at age five (Barnett, 2002; Reynolds, 2002).

However, there are different opinions on the persistence of long-term program effects. Barnett (1995 and 2002) examined a total of forty-three published research studies on large-scale public programs serving economically disadvantaged children at age four or younger. These studies measured participants' later achievement on at least one aspect of cognitive development, school progress, or socialization up to the third grade or later. Most of these studies utilized nontreatment comparison groups that were similar to the groups of children who participated in the intervention. No random assignment or quasi-experimental designs were used since such designs are often not practical in educational studies. The sample sizes in these studies ranged from 61 to 3,980 subjects.

Barnett (1995) found that long-term effects measured by achievement test results for reading and mathematics in large-scale programs were quite variable. Four of twenty-one studies of large-scale programs found no effects at any time. Five studies found initial effects that faded and ceased to be statistically significant by the end of the third grade. The other studies found statistically significant positive program effects in the third grade or later. The variation in findings with respect to the impact on long-term achievement could be the result of the quality of program implementation, design variations, high attrition of subjects, the lack of uniformity in the tests used to measure the achievements, or some other factors.

Other studies found positive results in both short- and long-term gains (Barnett, 1995; Ramey & Ramey, 1998). In his latest study, *Early Childhood Interventions: Knowledge, Practice, and Policy* (2002), Reynolds finds more evidence that program effects are significantly related to early and longer program participation, especially with regard to reading and mathematics achievement. Early participation provides greater learning opportunities for children when their cognitive, language, and motor skills are developing rapidly. Two major studies of long-term programs, the Carolina Abecedarian Project (Campbell et al., 1998) and the Chicago Child-

Parent Center (CPC) longitudinal research (Reynolds, 2002), have also noted the advantage of early intervention.

The Carolina Abecedarian study reported a long-lasting benefit for children born to low-income families who were enrolled in an experimental early education program. Of the 111 children studied, 57 were continuously enrolled from infancy through age five in a high-quality early childhood program that used learning games to enhance children's abilities. The other 54 children who constituted the control group did not receive services. Researchers followed these children until age twenty-one. At that age, those students who had received early intervention were more likely to score higher on reading and mathematics tests, to be enrolled in or to have graduated from a four-year college, to have delayed parenthood, and to be gainfully employed (Campbell et al., 1998).

The CPC program is a center-based early intervention effort that provides comprehensive educational and family support services to economically disadvantaged children from preschool to the early elementary grades. The central goal of the program is, in the words of one authority, to "reach the child and parent early, develop language skills and self-confidence, and to demonstrate that these children, if given a chance, can meet successfully all the demands of today's technological, urban society" (cited in Reynolds, 2002, p. 114).

The longitudinal study of the CPC program included 989 low-income, mostly African-American children who entered the program in preschool and finished kindergarten in 1986 and 550 children from similar disadvantaged neighborhoods who participated in an alternative all-day kindergarten program in the Chicago schools. The groups were well matched according to their eligibility for intervention, family socioeconomic status, gender, and race. At age twenty in 2000, 1,281 children (83 percent of the original sample) remained active in the study.

The CPC results presented clear evidence that participants were more ready to learn than were children who did not participate, and relatively high proportions of students in the experimental group scored at or above national norms on standardized tests. These effects carried over to later school achievement. For example, when they had reached the age range between eighteen to twenty years old, participating subjects were 29 percent more likely than those in the comparison group to have completed school. In addition, they had a 33 percent lower rate of juvenile arrest and a 40 percent lower rate of special education placement and grade retention (Reynolds, 2002).

Researchers also note that children who have the same experiences in early education may vary in their later academic achievements (Barnett et al., 1987; Barnett, 1995; Reynolds, 2002). Children who were from disadvantaged families or who were from high-poverty neighborhoods benefited more from early interventions. There were some indications that boys benefited more from preschool, but girls benefited more from follow-up intervention (Reynolds, 2002). Another recent national longitudinal study on the effects of early education demonstrated that children who lacked a positive learning environment did not achieve as well as those who did have those resources. These influences persisted from kindergarten through the first grade (Denton & West, 2002).

Some programs appear to be more effective than others. Barnett (2002) discovered that school educational interventions (mostly part-day) for four-year-old disadvantaged children, including Head Start and public school programs, have larger estimated effects than child day-care

programs. However, he warned that some caution should be exercised in drawing conclusions because programs vary with respect to the children served as well as in the research design adopted by the researchers.

What do we already know about the program effects of the child development programs for four-year-olds in South Carolina? In terms of short-term effects, a report on South Carolina preschool programs published in 1987 demonstrated that program participation helped program participants on performance measures at grade one (Barnett et al., 1987). This study followed a state sample of 362 preschool program (the 1983–84 cohort group of the child development programs for four-year olds) participants and 1,662 nonparticipants to grade one. It found that the students who participated in the preschool program were more likely to score above the readiness cut-off score on the CSAB and were more likely to score higher on the first-grade BSAP (Basic Skills Assessment Program) reading and mathematics tests than were non-preschool program participants, though no statistically significant differences between groups were found.

More recently, three large-scale longitudinal studies conducted by the SDE's Office of Research provided additional evidence for the extended effects of early childhood programs. (The results of these studies were published by the SDE in *A Longitudinal Research Report on the Early Childhood Development Program* in 1998, 1999, and 2000.) All three studies constructed comparison groups of children who were matched on the basis of free- or reduced-price lunch program eligibility. Large sample sizes were utilized (8,235, 8,987, and 9,701 subjects respectively stayed active in each study). These studies tracked participating children from half-day child development programs at age four to the first grade. Comparisons of the CSAB school readiness scores of participants and nonparticipants were made. In spite of their higher risk for school failure, program participants performed equally as well as nonparticipants when entering the first grade at public schools. Among program participants it appeared that females and Asian and Caucasian students outperformed their peers. Participants' socioeconomic status and mothers' educational levels were positively related with the students' school readiness at grade one.

In South Carolina, program effect studies have been limited to half-day child development program participants since the EIA and Act 135 required districts to establish at least one half-day program for children at risk. Program effect differences between full-day and half-day child development programs were not known at the time these three longitudinal studies were conducted. A review of the studies published over the past decade found no research concerning the long-term effect on the achievement of child development program participants beyond the first grade.

Study Design and Methodology

Since students could not be randomly assigned to a treatment group, a quasi-experimental design was utilized in which similar comparison groups were established. A longitudinal match on the program participants from the four-year-old child development program through the third grade with demographics and academic achievement test scores was completed. The comparison group was constructed by randomly selecting children who were not participants in child development programs but who were comparable in essential characteristics (eligibility for the free- or reduced-price lunch program) to the children who were participants.

Population and Sample

All children (9,977 valid records) who participated in child development programs in 1995–96 were followed longitudinally through the third grade. Children participating in child development programs were deliberately identified and recruited through a screening process utilizing the DIAL-R, along with supplementary information about the child's family such as education and income level.

A nonparticipant comparable group was randomly selected (7,889) from students eligible for free- or reduced-price school lunch. Any comparison group will consist of students who, on the whole, have lesser degrees of risk for school failure than the child development program participants. The PACT test scores of 15,143 third-grade children (85 percent of the original subjects) for the 1999–2000 school year were examined.

Data Collection

Five data sources were utilized in the investigation:

- the statewide survey on programs for four-year-olds conducted by the SDE's Office of Research during the 1995–96 school year;
- statewide student information files from the 1997–98 school year through the 1999–2000 school year (SDE precode file);
- statewide Cognitive Skills Assessment Battery (CSAB) testing in grade one in the 1997–98 school year;
- Metropolitan Achievement Tests, Seventh Edition (MAT7) testing of available students in nine school districts in spring 1999 (when the cohort group was in the second grade); and
- statewide Palmetto Achievement Challenge Tests (PACT) testing in spring 2000 (when the cohort group was in the third grade).

Data Analyses

First-grade CSAB scores, second-grade MAT7 scores in reading and mathematics, and third-grade PACT English language arts (ELA) and mathematics scores of program participants and nonparticipants were compared. In order to determine whether the mean scores of the participants and groups of nonparticipants were significantly different, t-tests were utilized. Analyses of variances (ANOVA) were applied for comparisons of three or more groups when subpopulations were examined. When control of the extraneous variables was desired, analysis of covariance (ANCOVA) was used where possible to achieve statistical control of the extraneous variables in order to reduce error caused by initial differences on participants' later academic performances. The level of statistical significance was set at a probability value of .05 as the threshold; a probability below this threshold ($P < .05$) indicates that a difference of this magnitude could happen by chance less than 5 percent of the time.

Limitations to the Study

When one is designing educational program evaluation studies, certain limitations are inherently imposed. For the following reasons, this study should be interpreted with caution.

- A major limitation relates to the fact that due to ethical and practical considerations, individuals were not randomly assigned to treatment groups. With this limitation in mind, it is obvious that "true" experiments cannot be conducted when evaluating programs. This study employs quasi-experimental design; therefore, it is not feasible to completely rule out alternative explanations for the results.

- Uniform criteria for program implementation, instructional methods, the quality of teachers' professional development activities, and so forth were not mandated at the time when the data for this cohort group were collected.

- The comparison group for this study was randomly selected from nonprogram students eligible for free- or reduced-price school lunch. Students enrolled in the four-year-old child development programs typically have significant readiness deficiency indicators other than low family income. Districts were required to identify and serve students at greatest risk for early school failure. Any selected comparison group likely will consist of students who, on the whole, have lesser degrees of risk.

- Statewide student achievement test scores were not available for grade two. The analysis in this report relied on a very limited sample of nine school districts that were not randomly selected, nor were the students guaranteed to be representative of all second-grade students in the state.

- The information about the nature of academic assistance provided to students in the primary grades using Act 135 funds was not available. Each school district could provide assistance uniquely to best serve local needs and considerations. Therefore, this study used only the number of hours that students received academic assistance.

For these reasons, statistical findings should be considered good but not exact. To maximize the internal and external validities, a comprehensive evaluation of the effectiveness and impact of child development programs for four-year-olds will require resolution of the above-described flaws in design and implementation.

Research Questions

1. What were the differences in student academic performance from grade one through grade three between child development program participants and nonparticipants? Did academic performance differ by demographic characteristics? (Statewide first-grade CSAB data in 1997–98, nine districts' second-grade MAT7 data in spring 1999, and statewide third-grade PACT data in spring 2000.)

2. Among child development program participants, which group of children benefited most in terms of academic achievement up to the third grade? (Data application is the same as question one.)

3. Did continued academic assistance given to program participants from grade two through grade three affect their academic performance? (Second-grade MAT7 data from nine school districts in spring 1999 and statewide third-grade PACT data in spring 2000.)

4. What were the academic performance differences between child development program participants in half-day programs and those in full-day programs in grades one through three? Did their performances differ by demographic features? (Data application is the same as question one.)

Findings

1. What were the differences in student academic performance from grade one through grade three between child development program participants and nonparticipants? Did academic performance differ by demographic characteristics?

Students who participated in child development programs for four-year-olds scored higher on first-grade school readiness assessments, second-grade MAT7 tests, and third-grade PACT tests.

First Grade

The comparisons were conducted on first-grade school readiness scores between child development program participants and comparable nonparticipants randomly selected from students who were eligible for the free- or reduced-price school lunch program.

- Students who participated in the child development programs for four-year-olds scored significantly higher in school readiness as measured by the CSAB at grade one.

- In comparisons between the student demographic features of participants and nonparticipants, the findings significantly favored the program participants among Caucasian, non-Caucasian, male, female, and students eligible for the free- or reduced-price lunch program at school. Table 11 describes the details.

TABLE 11

Comparison between Child Development Program Participants and Nonparticipants: Mean CSAB School Readiness Scores by Demographic Category, Fall 1997

Student Demographic Category	Program Participants N=7,515	Nonparticipants N=7,889	Statistical Significance Level
All	93.9	92.1	< .05
Male	92.9	90.6	< .05
Female	94.7	93.2	< .05
Caucasian	95.6	93.8	< .05
Non-Caucasian	92.5	91.3	< .05
Eligible for free- or reduced-price lunch	92.4	92.1	< .05

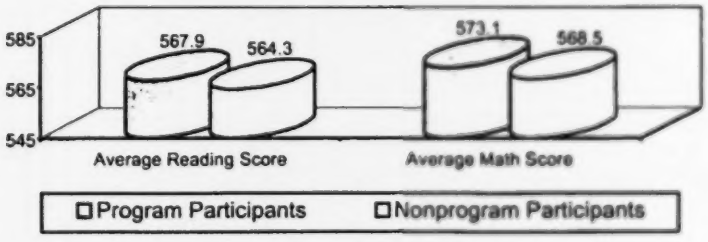
Second Grade

The analysis utilized MAT7 test data available from nine school districts. Child development program participants were matched to the second-grade MAT7 data (N=1,224). The same randomly selected nonprogram students eligible for the free- or reduced-price lunch program who served as the first-grade comparison group were matched to their second-grade (N=711) MAT7 test scores in the nine school districts for performance comparisons.

- Child development program participants in the nine school districts scored higher on second-grade MAT7 reading and mathematics than nonparticipants. However, the gaps were not large enough to be statistically significant. Figure 8 shows the differences.

Figure 8

Comparison between Child Development Program Participants and Nonparticipants: Second-Grade MAT7 Performance in Nine School Districts, Spring 1999



- In comparing test scores between participants and nonparticipants, the findings favored the program participants among Caucasian, non-Caucasian, female, and students eligible for free- or reduced-price lunch—though the difference was not large enough to be statistically significant. Only male participants scored significantly higher than the male nonparticipants on mathematics. Table 12 gives the details.

TABLE 12

Comparison between Child Development Program Participants and Nonparticipants: MAT7 Reading and Mathematics Performance by Demographic Category, Spring 1999

Student Demographic Category	Mean Scores Reading		Mean Scores Math		Statistical Significance Level	
	Program N=1,213	Nonprogram N=696	Program N=1,216	Nonprogram N=708	Reading	Math
Male	566.7	561.0	571.6	565.2		< .05
Female	570.4	569.5	575.8	574.1		
Caucasian	569.6	564.4	574.7	570.2		
Non-Caucasian	564.0	562.4	569.4	566.0		
Eligible for free- or reduced-price lunch program	564.1	563.1	569.9	567.9		

Third Grade

About fifteen thousand students (15,143), 85 percent of the original subjects statewide, were matched from prekindergarten at age four through the third grade on the PACT test scores in 2000. The PACT scores of participants and those of randomly selected nonparticipants comparable in eligibility for the free- or reduced-price lunch program were compared.

- Child development program participants scored significantly higher on third-grade PACT in spring 2000 on both subject areas of ELA and mathematics than nonparticipants ($P < .05$). Figure 9 shows the performance comparisons.

- All program participants in subgroups divided by demographic characteristics (male, female, Caucasian, non-Caucasian) scored significantly higher in both subject areas on the PACT than nonparticipants ($P < .05$) except students from economically disadvantaged families. The higher scores on mathematics favored child development program participants eligible for the free- or reduced-price lunch program, but the difference was not large enough to be statistically significant (see table 13).

Figure 9
Comparison between Child Development Program Participants and Nonparticipants: Third-Grade Performance on the PACT, Statewide, Spring 2000

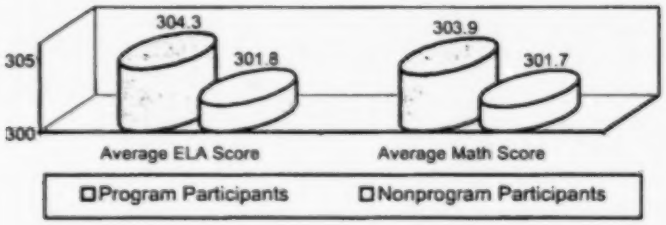


TABLE 13

Comparison between Child Development Program Participants and Nonparticipants: Third-Grade Performance on the PACT by Demographic Category, Spring 2000

Student Demographic Category	Mean Scores ELA		Mean Scores Math		Statistical Significance Level	
	Program N=7,298	Nonprogram N=7,658	Program N=7,342	Nonprogram N=7,725	ELA	Math
Male	302.9	299.8	304.2	301.2	< .05	< .05
Female	305.6	303.9	303.6	302.2	< .05	< .05
Caucasian	309.0	307.9	309.4	308.3	< .05	< .05
Non-Caucasian	299.8	298.2	298.9	297.8	< .05	< .05
Eligible for free- or reduced-price lunch program	300.1	298.9	299.1	298.8	< .05	

2. Among child development program participants, which group of children benefited most in terms of academic achievement up to the third grade?

Asian and Caucasian participants consistently outperformed African-American program participants from grade one to grade three. Participating children not eligible for the free- or reduced-price school lunch program demonstrated higher gains.

The program's impact on groups of participants was measured by comparisons of their scores on the first-grade CSAB, the second-grade MAT7 reading and mathematics, and the third-grade PACT ELA and mathematics. Comparisons were made between subgroups by gender, race, and family income (as measured by eligibility for the free- or reduced-price lunch program). Any demographic groups of participating children with fewer than thirty students were excluded. Tables 14–16 give detailed comparisons by gender, race, and lunch status, respectively.

TABLE 14

Later Academic Performance of Child Development Program Participants, 1997–98 through 1999–2000 School Years, by Gender

	GRADE 1 School Readiness Mean Scores	GRADE 2 MAT7 Mean Scores		GRADE 3 PACT Mean Scores	
	Statewide	Nine School Districts		Statewide	
Gender	N=7,515	Reading N=1,194	Math N=1,197	ELA N=7,294	Math N=7,337
Female (F)	95.1	570.7	576.1	305.6	303.1
Male (M)	93.2	569.9	574.6	302.9	303.7
Gender group comparison results	F > M			F > M	
Statistical significance level	P< .05			P< .05	

TABLE 15

Later Academic Performance of Child Development Program Participants, 1997–98 through 1999–2000 School Years, by Race

	GRADE 1 School Readiness Mean Scores	GRADE 2 MAT7 Mean Scores		GRADE 3 PACT Mean Scores	
	Statewide	Nine School Districts		Statewide	
Race	N=7,515	Reading N=1,194	Math N=1,197	ELA N=7,294	Math N=7,337
Asian	97.3	573.1	577.9		
Caucasian	95.9			309.0	309.4
Other	94.2				
African-American (A-A)	92.8	567.3	572.6	299.8	298.8
Hispanic	91.2			309.0	307.3
Racial group comparison results	Asian>A-A & Hispanic Caucasian >A-A & Hispanic	Caucasian > A-A	Caucasian > A-A	Caucasian & Hispanic >A-A	Caucasian & Hispanic >A-A
Statistical significance level	P< .05	P< .05	P< .05	P< .05	P< .05

TABLE 16

Later Academic Performance of Child Development Program Participants, 1997–98 through 1999–2000 School Years, by Lunch Status

	GRADE 1 School Readiness Mean Scores	GRADE 2 MAT7 Mean Scores		GRADE 3 PACT Mean Scores	
	Statewide	Nine School Districts		Statewide	
Lunch status	N=7,515	Reading N=1,194	Math N=1,197	ELA N=7,294	Math N=7,337
Not eligible for free- or reduced-price (NF/R) lunch	96.9	574.4	578.6	310.4	310.4
Eligible for free- or reduced-price lunch (F/R)	92.7	568.5	573.9	300.0	299.5
Lunch group comparison results	NF/R lunch > F/R lunch	NF/R lunch > F/R lunch		NF/R lunch > F/R lunch	NF/R lunch > F/R lunch
Statistical significance level	$P < .05$	$P < .05$		$P < .05$	$P < .05$

Statewide data analyses comparing subgroups among program participants provided evidence that at grades one and three, Asian, Caucasian, and Hispanic children (third grade) and children not eligible for free- or reduced-price lunch scored higher on school readiness measures and on third-grade reading and mathematics. Female participants scored significantly higher on the CSAB and the third-grade PACT ELA. The second-grade data available from the nine school districts revealed that Caucasian participants had better performances than African-Americans on MAT7 reading and mathematics. Also the economic status of participants' families (as determined by lunch status) was positively related with second-grade MAT7 reading performances. Children not eligible for the free- or reduced-price lunch program outperformed those who were eligible for the program, except in mathematics at grade two.

More intensive data analyses using ANCOVA were conducted in order to reduce the error caused by initial differences among students when they were entering the program and at the first grade. Adjusted mean scores were obtained by removing initial differences at program entry on DIAL-R scores and differences in CSAB scores possibly caused by students' having participated in other preschool programs. Similar results were obtained from statewide data analysis except for participants' third-grade mathematics scores on PACT. The adjusted mean scores of male participants were significantly higher than those of their female counterparts, while without statistical control on the extraneous variable, no gender differences were found. The second-grade performance analyses using participants from the nine districts revealed that after the initial differences were removed, participants from disadvantaged families (eligible for free- or reduced-price lunch program) performed equally well on MAT7 reading as students from families not identified as disadvantaged.

3. Did continued academic assistance given to program participants from grade two through grade three affect their academic performance?

Program participation reduced the percentage of students who needed extensive academic assistance at grades two and three. Participating children who received academic assistance for one to two hours per week scored significantly higher on ELA and mathematics as measured by third-grade PACT than those who needed assistance more than two hours per week.

Students needing academic assistance in the primary grades were divided into two groups in the following analysis, the group receiving one to two hours per week of academic assistance and the group receiving more than two hours per week. The data showed that at grade two, more nonparticipants received over two hours per week of academic assistance (40 percent) than students who had participated in child development programs (27.2 percent). At grade three, 31 percent of both participants and nonparticipants received over two hours of academic assistance per week.

The following comparisons were conducted on participants' performance differences between the group receiving one to two hours and the other receiving more than two hours of academic assistance per week at grades two and three.

Second Grade

The analyses of data from the nine districts revealed that program participants' having received a greater amount of academic assistance (over two hours) weekly was not significantly associated with better MAT7 performances in reading or mathematics at grade two.

Third-Grade ELA and Mathematics

Statewide data analysis discovered that participants receiving fewer hours of academic assistance (one to two hours per week) demonstrated significantly higher average scores in both ELA and mathematics on PACT at grade three. Table 17 depicts the differences.

TABLE 17

Later Performances of Child Development Program Participants by Hours of Academic Assistance Received Weekly Grade 3, Statewide PACT Data, Spring 2000

		PACT ELA Mean Score	PACT Math Mean Score
Group 1	1–2 hours of academic assistance per week	304.0	303.5
Group 2	More than 2 hours of academic assistance per week	302.3	302.6
Group comparison results	Group 1 > Group 2		
Statistical significance levels		$P < .05$	$P < .05$

4. What were the academic performance differences between child development program participants in half-day programs and those in full-day programs in grades one through three? Did their performances differ by demographic features?

First Grade

Statewide data showed that children from full-day and half-day programs scored very similarly on school readiness measured by the CSAB at grade one.

Due to the limited number of children (N=877) served by full-day child development programs, a random selection procedure was used to select 991 participants from half-day programs in order to make two similar-sized groups. The first-grade CSAB scores of half-day program participants were compared to the scores of full-day program participants. The findings were that children from these two types of programs scored equally well on first-grade school readiness assessment. No statistical significance was found. Disaggregated student data were also examined between male and female, Caucasian and non-Caucasian, and students eligible for free- or reduced-price lunch and students paying full price for school lunch. No statistical differences were discovered in school readiness scores on the CSAB at grade one. Table 18 presents the details.

TABLE 18

Comparison between Full-Day and Half-Day Child Development Program Participants at Grade One: CSAB School Readiness Mean Scores by Demographic Category, Fall 1997

Student Demographic Category		Half-Day Program Participants N=991	Full-Day Program Participants N=877
All		93.9	93.8
Gender	Male	93.2	92.4
	Female	94.1	94.7
Race	Caucasian	95.0	96.0
	Non-Caucasian	92.6	92.4
Lunch status	Eligible for free- or reduced-price lunch	92.7	92.5
	Not eligible	95.6	96.6

Second Grade

Comparison was not meaningful as MAT7 test data available from nine school districts provided an insufficient number of full-day participants (N <30) to yield statistically reliable information.

Third Grade

Participants from full-day programs and those from half-day programs scored equally well on third-grade ELA and mathematics.

There was no performance difference on the third-grade PACT performance between full-day and half-day child development program participants. When disaggregated data were analyzed by male, female, Caucasian, non-Caucasian, eligibility for the free- or reduced-price lunch program, and fully paid lunch students, the differences found were too small for statistical significance. Table 9 shows the comparisons of third-grade PACT scores between full-day and half-day program participants.

TABLE 19

Comparison between Full-Day and Half-Day Child Development Program Participants: Third-Grade PACT Performance by Demographic Category, Spring 2000

Student Demographic Category		ELA Mean Scores		Math Mean Scores	
		Full-day N=857	Half-day N=951	Full-day N=867	Half-day N=957
Total		304.9	304.4	303.9	303.1
Gender	Male	302.4	302.7	304.1	303.6
	Female	302.4	302.7	304.1	303.8
Race	Caucasian	308.9	308.3	310.0	308.4
	Non-Caucasian	299.7	298.1	299.0	297.3
Lunch Status	Eligible for free- or reduced-price lunch	299.0	297.5	298.8	297.0
	Not eligible	310.3	309.9	311.1	309.7

Conclusions

This study focused on the later academic performances of children who participated in the 1995–96 class of the child development program for four-year-olds. It followed the cohort group for four years and compared student performances on the CSAB first-grade school readiness assessment, second-grade MAT7 tests, and third-grade PACT scores between participants and nonparticipants as well as within-program disaggregated populations. It also investigated the issue of whether the different hours of academic assistance that participants received per week from grade two to grade three helped their performance. Finally, it looked into the performance differences between full-day and half-day child development program participants on the same tests mentioned above from grade one through grade three. Detailed data analyses yielded the following conclusions:

- Child development programs for four-year-olds had a positive long-term effect on participants' later academic performances in comparison to similar students who did not participate in the program. By definition, the majority of program participants were children whose developmental indicators—including their families' economic and educational backgrounds—placed them at risk academically. In spite of their risk levels, the program participants statewide demonstrated significantly higher scores than nonparticipants on the CSAB first-grade readiness assessment and the third-grade PACT in ELA and mathematics. Comparisons on the second-grade MAT7 reading and mathematics revealed that participants scored higher than nonparticipants, but the difference was not large enough to be statistically significant. When disaggregated data analyses were conducted by male, female, Caucasian, non-Caucasian, and free- or reduced-price school lunch students, participants in all subgroups scored significantly higher on the CSAB than nonparticipants. At grade two, only male participants scored significantly higher than their nonparticipant peers on mathematics. At the third grade, all participants belonging to the above-mentioned demographic groups scored higher in both ELA and mathematics on the PACT than nonparticipants—except for those participants eligible for the free- or reduced-price lunch program, who scored higher than their nonparticipant peers only on the ELA section of the PACT.

- It appears that child development programs helped Asian, Caucasian, and Hispanic children more than other ethnic groups of children in their later achievement performances on reading and mathematics. Female participants benefited more than male participants from the child development program on measures of reading. Child development program participation appeared less effective for African-American students and participants eligible for free- or reduced-price lunch than for students in other demographic categories.

- Fewer child development program participants than nonparticipants needed academic assistance more than two hours per week at grade two. Participants who received one to two hours of academic assistance per week demonstrated significantly better performance on third-grade PACT ELA and mathematics than their counterparts who needed more than two hours of academic assistance per week.

- Statewide data analysis on the long-term program effect on academic performance of full-day and half-day program participants illustrated that full-day and half-day participants performed equally well on the CSAB and third-grade PACT tests. Second-grade MAT7 student performance data for full-day and half-day participants were insufficient (from nine school districts) to provide statistically reliable results in a comparison of the two.

Recommendations

The following recommendations are based upon the study results:

- Studies on other program effect indicators such as the reduction of the grade retention rate or the rate of placement of children in special education should be conducted to illustrate, in more depth, the positive effects that child development programs have on academic performances.

- Studies should be conducted to identify curricula and teaching methodologies that are more sensitive to the needs of African-American participants and those eligible for the free- or reduced-price lunch program.

- The nature and quality of academic assistance provided to children with academic difficulties in primary grades need to be investigated to determine academic assistance methods more effective than merely additional time.

- Program impact on children's cognitive and social development should be evaluated using both quantitative and qualitative data.

- An examination of the similarities and differences between full-day and half-day programs should be conducted to better understand the relationship between types of programs and participants' later performances.

- A study of the relationship between leadership expertise (that of directors or supervisors of the child development programs) and student outcome should be developed to further address the issue of program quality.

- A study of the relationship between participating children's later academic achievement and the curriculum or pedagogy used in classrooms should be carried out to provide empirical data for identifying effective instructional practices.

- Research on the effect of the duration of program participation on children's achievement at primary grades should be conducted. It will provide evidence to parents and educators regarding the minimum amount of time that children with predicted school readiness deficiencies should participate in child development programs.

SECTION 3

Current Parent Perceptions, Spring 2002

Longitudinal studies of South Carolina child development programs conducted by the SDE's Office of Research (*A Longitudinal Research Report* 1998, 1999 & 2000) have found positive program effects on school readiness for at-risk students. To gain a deeper understanding of these effects, a survey was conducted among parents whose children were, or had been, enrolled in child development programs for four-year-olds for at least ninety days during the 2001–02 school year. This section of the present report investigates parents' general satisfaction with the areas of classroom teaching, learning content, instructional methods, learning and physical environments, program implementation, progress children made by participating, and the program administrator-parent relations. Substantial opinion differences (larger than 10 percentage points) between subpopulations among parents are also examined here.

Methods and Procedures

The survey included twenty items selected through a review of *Guidelines for Half-Day Child Development Programs* (1998) and discussions with early childhood education experts from local education agencies. Each item consisted of a single statement. Parents were asked to indicate the extent to which they agreed with each statement using a five-point scale, ranging from "strongly disagree" to "strongly agree."

Factor analyses of the survey data revealed the existence of three domains: program quality, the progress children made, and program administrator-parent relations. A reliability analysis on the survey items revealed a reliability index of .95 (Cronbach coefficient alpha).

The survey form was distributed to the parents in spring of 2002. Early childhood coordinators in each district were asked to make copies of the form and send them to teachers for distribution to parents. Parents were asked to return the completed survey form to the teacher. Ultimately, 3,991 completed surveys from twenty-three school districts were returned to the SDE. The twenty-three districts appeared to be representative of the major geographical regions of the state: the Lowcountry, the Midlands, and the Upstate (see appendix C). Four out of ten parents who returned the survey form had a child or children in a full-day program.

The estimated survey return rate was only 27 percent. As a result, great caution should be used in interpreting the results of the survey. It may not be reasonable to attribute the opinions of the parents who responded to the entire population of parents.

Findings

The overall parent satisfaction with the child development program was high, with a mean rating of 4.4 on a scale of 1 ("strongly disagree") to 5 ("strongly agree"). More detailed results are presented for each factor identified in the factor analysis.

Parents' Perception of Program Quality

Twelve items addressed issues of classroom teaching, learning content, instructional methods, and learning and physical environments. About 95 percent of the parents agreed or strongly agreed that the child development programs provided their children with quality services. Almost every parent (98 percent) agreed that the programs prepared their children for the next stage of learning, and they indicated that they would recommend the program to other parents. The highest level of parent satisfaction (99 percent agreed or strongly agreed) was expressed with the quality of instruction ("Teachers are doing a good job teaching my child"). The lowest level of satisfaction (94 percent agreed or strongly agreed) was with the amount of information that parents received concerning the progress that their children were making. Table 20 contains the results for items dealing with program quality.

TABLE 20

Parents' Perception of Program Quality, Spring 2002

	Response						Combined Responses		
Item	SD %	D %	Not Sure %	A %	SA %	N	SD/D %	Not Sure %	SA/A %
I feel welcomed at my child's school/center.	0	1	1	26	72	3,944	1	1	98
Teachers are doing a good job teaching my child.	1	0	0	22	77	3,910	1	0	99
My child is learning what he or she should at the school/center.	0	1	2	27	70	3,936	1	2	97
My child is safe at the school/ center.	1	0	3	32	64	3,893	1	3	96
Teachers at my child's program encourage parents to be involved with their children's education.	1	1	1	25	72	3,964	2	1	97
I receive enough information about the progress my child is making in each subject area.	1	3	2	33	61	3,908	4	2	94
My child learns in many different ways (e.g., large-group instruction, activity centers, small-group activities).	0	0	3	31	66	3,940	0	3	97
My child's classroom was equipped properly for his or her learning.	1	0	2	30	67	3,937	1	2	97
My child has enjoyed the program.	0	1	1	21	77	3,936	1	1	98
The program prepared my child for the next stage of learning.	1	1	2	25	71	3,923	2	2	96
I am satisfied with the benefits my child has received from the program.	1	0	1	25	73	3,950	1	1	98
I will recommend the program to other parents.	1	0	1	20	78	3,952	1	1	98

Legend:. SD = Strongly Disagree; D = Disagree; SA = Strongly Agree; A = Agree

Parents' Perception of the Progress Their Children Made in the Program

Six items addressed the parents' perception of the progress their children made in the age-appropriate developmental activities. These most fundamental skills were related to motor skills, concepts, language, self-help development, and social development (Mardell-Czudnowski & Goldenberg, 1998). One item asking the length of the school day, a factor associated with child learning, was included.

The highest degree of parent satisfaction (95 percent agreed or strongly agreed) was with the item asking if their children made progress in concept development, such as identifying body parts, naming colors, or counting. The item with the lowest percentage of parents indicating agreement or strong agreement (76 percent) questioned the progress made by their children in language skills. When parents were asked if they thought the school day was long enough for their children, most (82 percent) agreed or strongly agreed that the program was long enough.

TABLE 21

Parents' Perception of Their Children's Progress While in a Child Development Program, Spring 2002

Item	Response						Combined Responses		
	SD	D	Not Sure	A	SA		SD/D	Not Sure	SA/A
	%	%	%	%	%	N	%	%	%
My child made most progress in naming colors, counting numbers, or identifying body parts.	1	1	3	33	62	3,904	2	3	95
My child made most progress in catching, jumping, or balancing.	0	3	11	42	44	3,895	3	11	86
My child made most progress in naming verbs, classifying foods, or giving personal data.	1	4	19	39	37	3,854	5	19	76
My child made most progress in properly dealing with adults, friends, brothers, and sisters.	1	3	10	49	37	3,906	4	10	86
My child made most progress in buckling, buttoning, lacing, dressing, undressing, or feeding him- or herself.	1	5	7	44	43	3,850	6	7	87
My child's school day was long enough.	4	11	3	33	49	3,892	15	3	82

Legend:. SD = Strongly Disagree; D = Disagree; SA = Strongly Agree; A = Agree.

Parents' Perception of Program Administrator-Parent Relations

Two items addressed program administrator-parent relationships. Seventy three percent of the parents agreed or strongly agreed that the school principal gave them opportunities to be involved in the

decisions about how their children were taught. A few more parents (75 percent) thought that the principal was someone they could talk to when they needed to.

TABLE 22

Parents' Perception of Program Administrator-Parent Relations, Spring 2002

Items	Response						Combined Responses		
	SD	D	Not Sure	A	SA		SD/D	Not Sure	SA/A
	%	%	%	%	%	N	%	%	%
The principal gives me the opportunity to be involved in the decisions about how my child is taught.	1	4	22	37	36	3,873	5	22	73
The principal is someone I can talk to when I need to.	1	3	21	36	39	3,846	4	21	75

Legend: SD = Strongly Disagree; D = Disagree; SA = Strongly Agree; A = Agree

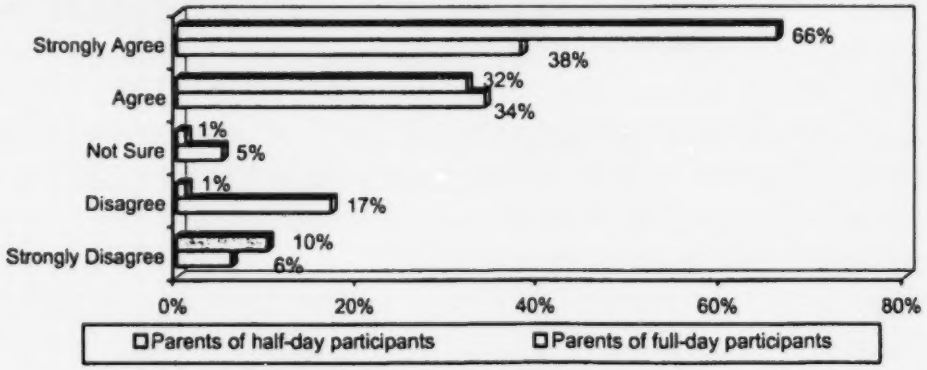
Comparison of Perceptions between Parents of Full-Day and Half-Day Participants

Item-by-item comparisons were conducted between the responses of parents whose children participated in full-day child development programs and those whose children participated in half-day programs. Analyses on the items showed parents' perceptions were very similar on most of the items. The average rating on all items was 4.5 from parents of children in the full-day program, and 4.4 from parents of half-day-program students.

Substantial difference (larger than 10 percentage points) was found only in the item asking parents if they thought the school day was long enough for their children. More parents of full-day participants (98 percent agreed or strongly agreed) thought the school day was long enough for their children than parents whose children were in half-day programs (72 percent).

Figure 10

Comparison between Parents of Full-Day and Half-Day Child Development Program Participants: Responses to the Item "My Child's School Day Was Long Enough," Spring 2002



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APPENDIX A

Survey Form: Parents' Perception of Child Development Programs for Four-Year-Olds

Check the appropriate box to indicate the type of program your child is in, and provide the name of the school your child attends:

❑ half-day program ❑ full-day program at (*school*): _____

For each item below, check in the blank that best describes your level of agreement. If you wish to make additional commends, write them on the back of the survey.

How much do you agree or disagree with each of the following statements?	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1. I feel welcomed at my child's school/center.	❑	❑	❑	❑	❑
2. Teachers are doing a good job teaching my child.	❑	❑	❑	❑	❑
3. My child is learning what he or she should at the school/center.	❑	❑	❑	❑	❑
4. My child is safe at the school/center.	❑	❑	❑	❑	❑
5. The principal gives me the opportunity to be involved in the decisions about how my child is taught.	❑	❑	❑	❑	❑
6. The principal is someone I can talk to when I need to.	❑	❑	❑	❑	❑
7. Teachers at my child's program encourage parents to be involved with their children's education.	❑	❑	❑	❑	❑
8. I receive enough information about the progress my child is making in each subject area.	❑	❑	❑	❑	❑
9. My child learns in many different ways (e.g., large-group instruction, activity centers, small-group activities).	❑	❑	❑	❑	❑
10. My child made most progress in naming colors, counting numbers, or identifying body parts.	❑	❑	❑	❑	❑
11. My child made most progress in catching, jumping, or balancing.	❑	❑	❑	❑	❑
12. My child made most progress in naming verbs, classifying foods, or giving personal data.	❑	❑	❑	❑	❑
13. My child made most progress in properly dealing with adults, friends, brothers, and sisters.	❑	❑	❑	❑	❑
14. My child made most progress in buckling, buttoning, lacing, dressing, undressing, or feeding him- or herself.	❑	❑	❑	❑	❑
15. My child's classroom was equipped properly for his or her learning.	❑	❑	❑	❑	❑
16. My child's school day was long enough.	❑	❑	❑	❑	❑
17. My child has enjoyed the program.	❑	❑	❑	❑	❑
18. The program prepared my child for the next stage of learning.	❑	❑	❑	❑	❑
19. I am satisfied with the benefits my child has received from the program.	❑	❑	❑	❑	❑
20. I will recommend the program to other parents.	❑	❑	❑	❑	❑

APPENDIX B

MEMORANDUM

TO: Early Childhood Coordinators

FROM: [Insert name], Supervisor
Evaluation Section, Office of Research

DATE: April 19, 2002

SUBJECT: Collecting Parents' Satisfaction Information for Four-Year-Old Programs

The Early Childhood Development and Academic Assistance Act (1993) requires that the State Department of Education annually collect and analyze longitudinal data to determine the effects of child development programs on later academic achievement. Longitudinal studies conducted by the Office of Research found positive program effects on school readiness for at-risk students. To gain a deeper understanding of these effects, the Office of Research is conducting a survey of parents whose children are or have been enrolled in child development programs for four-year-olds for *at least 90 days* during the 2001–02 school year. Parents' perceptions of the program will be used to guide future studies and to create policy recommendations that better serve the children in these programs.

We would like to ask you to help us with this research by asking parents from your schools/centers to complete the attached survey. It should take only ten minutes to complete. Please make copies of this form and ask teachers to distribute the forms to parents. Parents should be asked to return the completed survey to the teacher. Teachers should then return surveys to you for mailing to the State Department of Education. Send the completed surveys back to the Office of Research by **May 31, 2002.** If you have any questions, please feel free to contact Wei Yao by e-mail at wyao@sde.state.sc.us.

Your efforts to help with this data collection are greatly appreciated. Thank you for your assistance.

Please send completed surveys to

Cynthia Neal
South Carolina Department of Education
Office of Research
1429 Senate Street, Room 1205
Columbia, South Carolina 29201

Enclosures

APPENDIX C

Districts Providing MAT7 Test Data, Spring 2002

Lowcountry	Midlands	Upstate
Beaufort	Aiken	Cherokee
Charleston	Barnwell 45	Chester
Georgetown	Kershaw	Greenville
Horry	Lexington 1	Greenwood 50
Marion 3	Lexington 3	Laurens 55
Orangeburg 3	Lexington 4	Oconee
	Richland 2	Spartanburg 1
		Spartanburg 4
		Spartanburg 7
		York 3

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